Harold St. John.

Rhodora

JOURNAL OF THE

NEW ENGLAND BOTANICAL CLUB

Conducted and published for the Club, by
BENJAMIN LINCOLN ROBINSON, Editor-in-Chief
MERRITT LYNDON FERNALD, HOLLIS WEBSTER, CARROLL WILLIAM DODGE, Associate Editors
WILLIAM PENN RICH, Publication Committee

Vol. 28. August, 1926. No. 332.

CONTENTS:

The bulbiferous Form of Luzula multiflora. *Theo. Holm*...... 133
On Solidago rigida L. and Application of old Names. *C. A. Weatherby*. 138
Botanizing in Newfoundland (continued). *M. L. Fernald*..... 145
Suaeda maritima, A correction. *Walter Deane*............... 156

Boston, Mass.
300 Massachusetts Ave.

Providence, R. I.
Preston and Rounds Co.

RHODORA.—A monthly journal of botany, devoted primarily to the flora of New England. Price, $2.00 per year, postpaid (domestic and foreign); single copies (if available) 20 cents. Volumes 1-8 or single numbers from them can be supplied at somewhat advanced prices which will be furnished on application. Notes and short scientific papers, relating directly or indirectly to the plants of the northeastern states, will be gladly received and published to the extent that the limited space of the journal permits. Forms will be closed five weeks in advance of publication. Authors (of more than one page of print) will receive 25 copies of the issue in which their contributions appear. Extracted reprints, if ordered in advance, will be furnished at cost.

Address manuscripts and proofs to
B. L. ROBINSON, 3 Clement Circle, Cambridge, Mass.

Subscriptions, advertisements, and business communications to
W. P. RICH, 300 Massachusetts Avenue, Boston, Mass.

Entered at Boston, Mass., Post Office as Second Class Mail Matter.

BOTANICAL BOOKS,
New and Second Hand,
PRESTON & ROUNDS CO.,
Providence, R. I.

CARD-INDEX OF NEW GENERA, SPECIES AND VARIETIES OF AMERICAN PLANTS, 1885 TO DATE.

For American taxonomists and all students of American plants the most important supplement to the Index Kewensis, this catalogue in several ways exceeds the latter work in detail, since it lists not only the flowering plants, but pteridophytes and cellular cryptogams, and includes not merely genera and species, but likewise subspecies, varieties and forms. A work of reference invaluable for larger herbaria, leading libraries, academies of sciences, and other centers of botanical activity. Issued quarterly, at $22.50 per 1000 cards.

GRAY HERBARIUM of Harvard University,
Cambridge, Mass., U. S. A.

CHECK LIST OF GRAY'S MANUAL, 7th EDITION, compiled by M. A. Day. Leatherette. Pocket size. Invaluable for collector's memoranda and herbarium records. Published and sold by the Gray Herbarium, Cambridge, Mass. Price postpaid 20 cts. each. Ten copies $1.50.

MEMOIRS OF THE GRAY HERBARIUM. A series of illustrated quarto papers issued at irregular intervals, sold separately.

Vol. II. Persistence of Plants in unglaciated Areas of Boreal America, by M. L. Fernald, 102 pages. Aug. 1925. $2.00.

Gray Herbarium of Harvard University, Cambridge, Mass.

Advertisements of Nurserymen and Dealers in Botanical and other Scientific Publications are inserted in these pages at the following rates per space of 4 in. by 3–4 in. 1 year $4.00, 6 months $2.50.

Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 28. **August, 1926.** **No. 332.**

THE BULBIFEROUS FORM OF LUZULA MULTIFLORA.

THEO. HOLM.

A SPECIES of *Luzula*, which the writer cannot distinguish from the European *L. multiflora* (Ehrh.) Lej., is very frequent in the vicinity of Washington, D. C., notably in adjoining Maryland. It shows the same structure of the inflorescence and flower, but the perianth is somewhat paler, and, moreover, it is frequently bulbiferous. In Buchenau's treatment of the *Juncaceae*,[1] where *Luzula multiflora* is referred to *L. campestris* (Lam.) DC. as a variety, a bulbous plant is mentioned, the so-called *L. campestris* var. *bulbosa* Wood.[2] Buchenau, however, did not consider this as a variety proper, but merely as a form, corresponding with a similar form of the Australian variety *migrata* Buchenau "caulibus saepe bulbosis" (l. c. p. 94). Since then some other *Luzulae* have been observed to exhibit a smiliar bulbous structure according to Fernald and Wiegand:[3] "occasionally in vars. *macrantha, comosa, congesta,* and *multiflora* in America," and furthermore Professor Fernald has kindly informed us (in litteris) that he has also observed the development of bulbs in var. *Mannii* from Guinea, and in *Luzula subsessilis* (S. Wats.) Buchenau. The production of bulblets, however, is said to be more general in the var. *bulbosa* Wood than in any of the others.

Regarding the geographical distribution of the var. *bulbosa* Fernald and Wiegand give this as "New Jersey and southeastern Pennsylvania to Georgia, west to Kansas and Texas, and according to Professor

---

[1] Das Pflanzenreich by A. Engler IV. 36. Leipzig 1906, p. 95.

[2] Wood, A. Class-book of Botany. New York 1866, p. 723.

[3] M. L. Fernald and K. M. Wiegand. The variations of *Luzula campestris* in North America. RHODORA Vol. 15. 1913, p. 38.

Fernald (in litteris) the distribution has been extended north through southern New England into southeastern Massachusetts, where this variety forms a part of the characteristic flora of coastal plain dispersal. Thus so far as concerns the geographical distribution the bulbiferous *Luzula,* which we intend to describe, might well be referable to var. *bulbosa* Wood, if it were not for the fact that our material shows the perianth-leaves to be distinctly longer that the mature capsule. We remember that Wood's diagnosis calls for a plant with "sepals shorter than the globular capsule," and as stated by Professor Fernald (in litteris) this character and the production of numerous bulbs distinguish it at once.

With reference to our plant we can find no other character of importance by which to distinguish it from *Luzula multiflora* than the frequent development of bulbs. When we consider *Luzula multiflora* Lej. as a species distinct from *L. campestris* DC., contrary to the view of Buchenau and so many other prominent writers on the genus, this has always been our opinion since the time, when in Denmark we had the opportunity to study both species occurring in abundance. It would not be the place here to discuss in detail the characters by which these two species may be distinguished, but the following citation from Lange's Conspectus Florae Groenlandicae (Copenhagen 1880, p. 125) contains the most essential points: "*Luzula multiflora* Lej. Crescendi modo dense caespitoso, multicauli, glomerulis densifloris, erectis, florendi tempore magis serotino bene distincta mihi videtur a *L. campestri,* quae rhizomate repente, caulibus florigeris sparsis, glomerulis pendulis, magis laxifloris instructa est."

In Denmark the flowering time is so different, that *Luzula campestris* has almost mature fruits, when *L. mutliflora* begins to bloom. We also wish to refer to Lindman's excellent work on the Flora of Sweden,[1] where they are described as distinct species. The geographic distribution seems to be in favor of the view that they represent distinct species, for according to Buchenau (l. c.) typical *Luzula campestris* is only frequent in temperate Europe; from countries outside of Europe, Buchenau saw material only from Algiers, Nilgherries, Altai and Trapezunt. On the other hand *Luzula multiflora* abounds in temperate Europe, Asia and North America. In the paper by

---

[1] Lindman, C. A. M. Svensk Fanerogamflora. Stockholm 1918, p. 157. See also Buchenau: Kritisches Verzeichniss aller bis jetzt beschriebenen Juncaceen. Naturwiss. Verein Bremen 1880, p. 101, where this author considered it most natural to recognize *Luzula campestris, L. multiflora* and *L. pallescens* as distinct species.

Fernald and Wiegand (l. c.) *Luzula campestris,* although apparently absent from North America, as it seems according to the statement of Buchenau: "für N. America nicht sicher," is treated as a polymorphous species with nine varieties, including *L. multiflora,* said to be the most widely distributed of these.

Considering the varieties enumerated by Fernald and Wiegand (l. c.) these are, according to our opinion, closely related to *Luzula multiflora* with exception of *L. comosa* Meyer including the varieties: *congesta* Wats. [not to be confounded with *congesta* (Thuill.) Buchenau], *laxa* Buchenau, *macrantha* Wats. and *subsessilis* Wats., for the habit of these is very different from that of *L. multiflora* and *L. campestris.* Buchenau himself kept the *comosa*-alliance separate from that of *campestris,* and he even referred the var. *subsessilis* Wats. to another section describing it as a species *L. subsessilis* (S. Wats.) Buchenau next to *L. caricina* E. Mey. (l. c. p. 67). It seems strange that Buchenau separated *Luzula subsessilis* from the *comosa*-alliance, for as shown by the diagnoses, Buchenau was well aware of the singular structure of their inflorescence "spica infima saepe remota, longe stipitata," besides the structure of the single spikes, as compared with those of the other species. Such morphologic structures are important to classification, but they are frequently overlooked.

With regard to the development of bulbs we have seen above, that this is not restricted to a single species or variety, whatever it be, but that it occurs in *Luzula multiflora vera,* in *L. comosa* including its varieties, and in some few others. The structure of these bulbs was described by Buchenau[1] and his material came from Montenegro and New Holland. The plants having been dried did not show the structure with sufficient distinctness, thus the diagnosis: "Basis caulis et foliorum incrassata ut bulbus formata" does not indicate the singular habit of this interesting form.

Luzula multiflora being frequent in our vicinity we have had fresh material at our disposal, and, moreover, we have had the opportunity to study the plant in the various parts of the season. The vernal stage shows the original position of the bulbs, the autumnal their final, morphologic structure. The plant is bulbiferous and the bulbs represent axillary buds, situated in the axils of the basal, membranaceous leaves of the aerial, floral and vegetative shoots. Young specimens (Fig. 1) purely vegetative begin with a membranaceous, scale-like leaf preceding the green ones, and a small bulb is always developed in the axil of the first leaf, the membranaceous one. At the base of the shoot a relatively large bulb is very conspicuous, representing the only part left of the preceding year's growth, and the specimen figured was collected in the early spring. When examined at the autumnal stage, such young specimens show two bulbs, since the scale-leaves have withered and become torn by the growth of the bulb; the green leaves persist through the winter, surrounding the terminal bud, which generally develops into a floral shoot in the succeeding year.

---

[1] Buchenau, Fr. Ueber Knollen und Zwiebelbildung bei den Juncaceen. Flora 1891, p. 77.

The explanation of the position and morphological structure of the bulb is actually given by such young specimens. The plant has dimorphous buds: the apical developing leaves and shoots of the typical structure of *Luzula*, the axillary having succulent scale-leaves and never producing aerial shoots, being simply storage-organs. In mature specimens, densely caespitose, with several floral and many vegetative shoots, the position of the numerous bulbs is very complicated unless the young stage has been studied. Figs. 2 and 3 illustrate the autumnal stage of old plants, and it is readily to be noticed that none of the bulbs have increased in growth beyond a considerable thickening of the bulb-scales; there is no indication of any aerial shoots having been developed from these bulbs, but the original arrangement of the bulb-scales (Fig. 3) has become disturbed by the slow, but continuous growth of the axis, that bears the bulbs, imitating a stoloniferous habit. In figure 2 we have drawn some large bulbs of the typical form during the summer, and some of the bulb-scales show a distinct apex, a rudi-

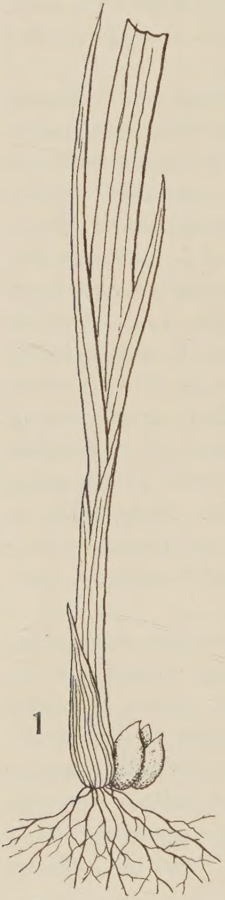
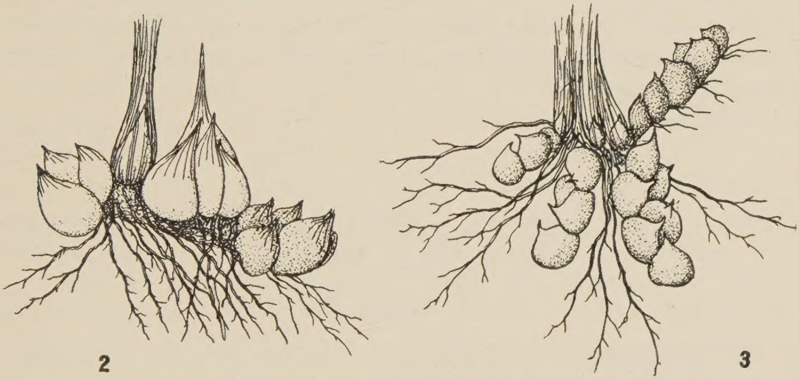


Fig. 1. Young specimen of *Luzula multiflora* Lej. forma *bulbosa.*

mentary blade, hairy as the green leaves. The structure of the bulb-scales is somewhat peculiar; they consist of a very thick body with the margins relatively broad hyaline, and composed of the epidermis alone. The chlorenchyma of the scales is very compact, homogeneous, consisting of many strata of isodiametric cells, filled with starch. There are mostly seven very thin mestome-strands in one band; they are of the collateral type and are supported by stereome, thick-walled and especially well represented on the hadrome face, while in the green leaves the leptome has the greater, mechanical support. A cross-section of a bulb shows three to five thick scales surrounding a few much smaller and thinner ones, which fail to develop any further. None of the specimens examined showed the base of the floral stem to be bulbous. The subterranean stem is profusely branched, but the internodes are very short; they contain a homogeneous cortex of about five strata with deposits of starch; an endodermis thickened in the manner of a U-endodermis; a band of about 18 mestome-strands, several being of the leptocentric type, and surrounded by thin-walled stereome; the narrow pith is solid, and starch-bearing.



Figs. 2 and 3. Bulbs of mature specimens of the same form, collected in the fall. The figures about twice natural size.

We have thus in this form of *Luzula multiflora* a plant with dimorphous buds, the bulbous being exclusively axillary, performing the function of storage organs, and never producing any aerial shoots, while the typical buds are terminal and produce vegetative and floral shoots.

The bulbiferous form is the most frequent in this vicinity, but we do not believe that the environment plays any rôle of importance, since we have found this form in sandy soil at the border of pine woods as well as in deciduous woods with rich humus.

None of the species of the sections *Pterodes* and *Anthelaea* exhibit this structure; it is confined to *Gymnodes*. In *Luzula nodulosa* (Bory) E. Mey. of the last section the rhizome is moniliform, but tuberous, not bulbiferous; similar tuberous rhizomes are known from several species of *Juncus*, for instance *J. nodosus*, *J. marginatus*, etc., while bulbs or bulb-like formations, known in the inflorescence of various species of *Junci septati* and *graminifolii* are caused by insects, *Livia* for instance.

Clinton, Maryland.

ON SOLIDAGO RIGIDA L., AND THE APPLICATION OF OLD BOTANICAL NAMES.

C. A. Weatherby.

Mr. Mackenzie's recent article on *Solidago rigida*,[1] in which he concludes that that name belongs to the species generally known as *S. patula* Muhl., furnishes a striking illustration of the uncertainties into which we are likely to be led by a strictly historical—one is tempted to say archaeological—method of determining the application of Linnaean and other old botanical names. For the case is by no means so clear to others as it appears to him.

It may be that the description of *Solidago rigida* in the Species Plantarum is not to be regarded as original there, though Linnaeus, in making it up, did revise the quoted diagnosis from the Hortus Cliffortianus to the extent of adding the word "scabris"; nor as based on the specimen in the Linnaean herbarium. But that specimen may have been part of the basis of the undoubtedly original description in the Hortus Cliffortianus; Linnaeus received "all the duplicates of the Clifford herbarium"[2] and for aught Mr. Mackenzie tells us, this may have been one of them. It might have been well to determine this point before altogether rejecting the specimen as representative of the species.

---

[1] Rhodora xxviii. 29–31 (1926).

[2] See Jackson, Proc. Linn. Soc. cxxiv, suppl. 11 (1912).

In any case, Linnaeus had certainly seen a specimen when he wrote the description in the Hortus Cliffortianus—a specimen "ramis . . . fastigiatis, corymbis terminatricibus." A blind man feeling with his fingers could hardly apply these terms to the strongly racemose inflorescence of *S. patula,* in which the lower branches tend to be remote and spreading and all are almost always floriferous at least to the middle and often nearly to the base. On the other hand, the phrases of Linnaeus apply well to *S. rigida* as currently interpreted, in which the branches tend to be ascending and crowded toward the summit of the stem and are only exceptionally floriferous for as much as half their length, usually bearing corymbiform inflorescences at or near their apices. And a manuscript note of Dr. Gray's states that the specimen of "*Solidago foliis caulinis ovatis*" etc., in the Clifford herbarium is actually *S. rigida* of current manuals.

There can, then, be little or no doubt that *S. rigida,* in its traditional sense, is an element in the *S. rigida* of Linnaeus. Are we, by the historical method, to regard the Clifford specimen as the type, to be associated with the original description of the Hort. Cliff., with which Linnaeus placed as a synonym Herman's "*Virga aurea novae angliae, lato rigidoque folio*" (erroneously, if Herman's plate really represents *S. patula*); or are we, following the principle of the name-bringing synonym, to take Herman's plate (always supposing that it represents *S. patula*) as representative of the species, and the Clifford specimen and description as erroneously associated with it by Linnaeus? In the similar case of *Limodorum tuberosum,*[1] Mr. Mackenzie chooses what corresponds to the former alternative; in this instance, he adopts the latter—without, as it appears to me, arriving at any conclusive results.

Herman's plate[2] is "excellent" in the technique of engraving; but it is not an accurate representation of either of the two species concerned. The lower leaves will do very well for *S. patula;* but the strongly ascending branches, beset with broad-based leaves and bearing terminal corymbs of flowers are quite wrong for that species. It is as if the artist had combined the two. Herman's description is similarly unsatisfactory; much of it seems to apply to *S. patula,* but the statement that the leaves are "as if embracing the stem at base" is at least greatly exaggerated for that species, but accurate enough for many specimens of *S. rigida,* in which the broad, subcordate bases of the leaves do appear amplexicaul. And finally the phrase "tactu aspera" on which Mr. Mackenzie so much relies, applies to either species; the leaves of *S. rigida* are also strongly scabrous, most so beneath.

---

[1] Rhodora xxvii. 193–196 (1925).

[2] Parad. Bot. t. 243 (1705).

More might be said, but the above should be enough to show in what an unsatisfied state we are left by the method of determining the application of the Linnaean name followed by Mr. Mackenzie. Yet all the while we have before us two perfectly definite facts—the specimen in the Linnaean herbarium, concerning the identity of which there is no doubt, and the unanimous interpretation of the species by (to go no further) Michaux, Pursh, Eaton, Torrey, Gray, Wood, and Britton.

The verticillate *Eupatoria* present a similar picture. They have been studied by Wiegand[1] and Mackenzie.[2] The two agree perfectly as to the taxonomy of the group, but disagree just as completely as to the application of the three Linnaean names concerned. Repeated rereading of their papers in an effort to arrive at some conclusion satisfactory to me, has convinced me that one argument is, as an argument, precisely as good as the other. Each has its strong and weak points; each is based partly on assumption. We are left with the necessity, if we wish to be certain of being understood, of labelling every specimen in the group with two names, one according to Wiegand and one according to Mackenzie. Yet, here again, there are in the Linnaean herbarium specimens of all three species, which were in his possession when the original portions of his descriptions were written. They could probably be identified by a botanist familiar with the rather technical species involved; so identified and accepted as types, they would at once end the present annoying and hampering ambiguity. Surely, in cases like these, the concrete fact of the Linnaean specimen should be allowed to decide what is otherwise incapable of decision.

It might, indeed, be plausibly argued that, if we were really willing to accept the rule that botanical nomenclature begins in 1753 as meaning what it says, specimens in Linnaeus' possession in that year would a priori become types of his species, regardless of the nomenclatorially invalid pre-Linnaean citations with which he may have associated them.[1] I am not, however, advocating anything so extreme and so liable to produce its own crop of confusion; as has repeatedly been pointed out,[2] Linnaean specimens are often not types in the modern sense; and, what is more important, it is in the highest degree doubtful if any rule can be devised which will work satisfactorily in all cases or even the majority of them. The circumstances are so various that each is best judged on its own merits. But there are certain considerations which can always and profitably be borne in mind.

---

[1] Rhodora xxii. 57–70 (1920).

[2] Op. cit. xxii. 157–165 (1920).

In the first place (and this is quite generally forgotten) botanical nomenclature is not in itself primarily a subject for scientific investigation, or a branch of historical research, but a practical device, closely analogous to language. Like language, it has (aside from the work of a few nomenclatorial theorists) assumed its present form through the gradual and more or less spontaneous growth of a body of usage; like language, it is useful just in proportion to the degree in which its component units are employed by everyone in the same sense. The amateur speaks from a sound instinct when he protests against change, even though he has commonly little understanding of the technical difficulties which confront the professional. It is a genuine misfortune when names like *Quercus rubra* and *Solidago rigida*, which for a century and three-quarters have been so consistently and accurately used in a given sense that they have not even accumulated an appreciable synonymy, are shifted from their well-nigh immemorial applications. One could wish that in such cases the principle of the nomen conservandum could be extended to specific names and made to include their application as well as the names themselves.

But this principle would not often have to be invoked if we would bear in mind a second simple consideration—that, if we are ever to achieve stability in the application of old names, we must cling wherever possible, to what is definite and indisputable, and flee from what is merely interpretative, conjectural, and open to argument. The concrete fact may be, as in the above cases, a specimen; it may be a good plate; it may be simply established usage. Very often the best way to arrive at stability is merely to let well enough alone; that is, to follow usage unless we can certainly prove it wrong. And by wrong, I do not mean inconsistent with our own individual conceptions of an ideal nomenclatorial system, or with our opinions as to the technical application of existing rules, but demonstrably mistaken.

---

[1] This, of course, would reverse the method—of the name-bringing synonym—generally employed for post-Linnaean literature; but it would make 1753 a real starting-point, not, as is the tendency at present, a more and more insignificant milestone on the road of nomenclatorial history.

[2] See, for instance, Blake, Rhodora xx. 21 (1918).

I am not, of course, arguing against all change; unless we are to become fossilized, change there must be, until our knowledge is perfect. But I am protesting against unnecessary change; and in particular against shifts in typification made on the basis of inconclusive bibliographical investigation, or on any other basis except irrefragable evidence of error.

The above considerations apply with double force to generic names, where a shift may affect, not one only, but many combinations. Here the makers of the International Rules did wisely in leaving the matter of the typification of genera rather vague. They doubtless realized that in many instances it had, for all practical purposes, been already accomplished; in others, it could be hoped that the conclusions of competent monographers would in time win universal acceptance. Is it practicable to go much further?

I look forward with misgiving to the ultimate consequences of the rules for the typification of genera contained in the American Code and in the Type-Basis Code, which it is now proposed to incorporate in the International Rules. Both, at least in their published applications, show the same readiness as does Mr. Mackenzie to pursue the chronologically primary element into the hazy and amorphous distances of pre-Linnaean literature, with the same probability of inconclusive results. Both present so complicated a series of alternatives that there is almost certain to be difference of opinion as to their application in any doubtful case. Both have to deal with the inherent difficulty of imposing the modern notion of types on the work of old authors whose heads it never entered. Both, therefore, may be expected to produce a high percentage of uncertainty and argument—and of these commodities we have enough already.

Probably, stability in generic nomenclature would most surely be approximated by the use of a method like the following.

1. The Species Plantarum should be made a real starting-point. All the genera of Linnaeus should be accepted as there constituted, regardless of the source from which he took their names, or of the sense in which these names were used by the authors from whom he took them. All species in a given genus should be regarded as equally

eligible to serve as the generic type, unless very definitely excluded by collateral circumstances.[1]

2. Where a genus has been later divided, the application of the name should be determined simply by current majority usage, as expressed in standard works. Should these prove hopelessly at variance, some of the provisions of the American Code might be employed as a secondary means of arriving at a conclusion.[2]

In other words, the typification of Linnaean and other old genera should be done, not at the beginning of their history, as is now being attempted, but at the end, after the accumulated results of taxonomic work have been taken into consideration.

Such a method would not be arbitrary, in any proper sense;[3] on the contrary, since it would endeavor to follow the lines of the actual development of nomenclatorial practice, it would be much less arbitrary than the setting up of ex post facto rules. It would be simple and at least apparently practical. It would enable us at once and without further argument, to retain such names as *Pteris* and *Pteridium*, *Holcus* and *Sorghum*, *Aira* and *Deschampsia*, *Sisymbrium* and *Erysimum*, *Leontodon* and *Taraxacum*, and even *Gerardia*, in their traditional senses.[4] And it would support the sound principle that the judgment of our predecessors, on whose work our own is necessarily based, expressed in usage, is not to be summarily thrust out of court, as by the American Code, or given incidental and subordinate consideration, as by the Type-Basis Code, but to carry its due influence.

---

[1] As, for example, certain species of *Acrostichum*, like *A. platyneuron* and *A. polypodioides*, which belong to other Linnaean genera; or, perhaps, species directly designated by Linnaeus as exceptional in their genera.

[2] When once the group to which the generic name is to belong has been thus determined, the choosing of an individual type species, if thought necessary, becomes of little importance and might be accomplished by any practicable means. In many cases, the type would automatically choose itself, through there being but one Linnaean species in the segregate genus.

[3] There is a certain tendency to use this term as a generally derogatory adjective, applicable to any system but one's own.

[4] For shifts in the application of these names see Britton, Flora of Bermuda 419 (1918): Illustrated Flora, ed. 2, ii. 162, 173, iii. 315 (1913): Mackenzie, Rhodora xxvii. 28, 47, 65 (1925); Hitchcock, Am. Journ. Bot. viii. 253, 255 (1921). x. 512 (1923). It may here be remarked that the interpretations of the International Rules given by Hitchcock and Mackenzie appear to me, in the light of the examples cited in these rules, wholly without authority. These authors simply read into the rules their own ideas as to typification. For instance, Art. 45 of the International Rules provides that when a genus is divided, if it contains a section or some other division which, judging by its name or its species, is the type or origin of the group, the name is reserved for that part of it. The single example given is as follows: "the genus *Helianthemum* contained, according to Dunal (in DC. *Prodr.* I. 266–284 [1824]), 112 well-known species distributed in nine sections; several of these sections have since been raised to generic rank (*Fumana* Spach, *Tuberaria* Spach) but the name *Helianthemum* has been kept for the divisions grouped round the section *Euhelianthemum.*" It is indeed hard to find in this example, expressly chosen to illustrate the meaning of Art. 45, any justification for Hitchcock's argument that the "historic type" of *Panicum* is *P. italicum* L., and that the name *Panicum* should therefore be applied to *Setaria* under the International Rules (Am. Journ. Bot. viii. 252–253).

It has been objected that usage is variable and hard to determine; but this difficulty is, I believe, more apparent than real. The familiar names are not always those that *we* learned;[1] they may be, as in the case of *Solidago rigida,* also those which our botanical fathers, grandfathers, and great-grandfathers learned before us. As to current usage, I have before me five representative European manuals—Bentham & Hooker's British Flora, ed. 7; Bonnier & de Layens's Flore de France; Archangeli's Flora Italiana, 2nd ed.; Schinz & Thellung's Flora der Schweiz, ed. 4; and Garcke's Flora von Deutschland ed. 22. Representatives of eight of the ten genera listed above as the subject of recent shifts under the American and Type-Basis codes appear in all of these floras. There are differences among them as to generic limits; two do not recognize *Deschampsia* and only two take up *Pteridium.* But whenever a genus is recognized at all, it appears under the same name and contains the same nucleus of Linnaean species—is used, that is, in precisely the same sense. The same is true of the American manuals at hand up to the publication of the second edition of the Illustrated Flora in 1913; I have no doubt it would prove true if the genera concerned were followed back at least to the Prodromus and Kunth's Enumeratio. In these cases, and in hundreds of others, usage has become crystallized and definite; what advantage can there be in disturbing achieved definiteness, or in opening the way to disturbing it, merely to satisfy a theoretical and largely untried system?

In 1896, Ascherson & Graebner wrote, in the preface to their Synopsis der mitteleuropäischen Flora, "We hold that nomenclature should be considered, not as an end in itself, but only as a means to the end of the widest possible intelligibility; and that therefore there

---

Similarly, his citation of Art. 19 as supporting his typification of *Holcus* overlooks the fact that this article has nothing whatever to do with typification, but was intended simply to legalize the adoption of the genera of the Species Plantarum, which were there published without the description required by the rules. (See Art. 38).

[1] Cf. Hitchcock, Am. Journ. Bot. xiii. 291 (1926).

is no question of principle in regard to it, but only of expediency."[1] These are wise words; they might well be inscribed above the chairman's seat in any assembly where botanical nomenclature is discussed.

EAST HARTFORD, CONN.

TWO SUMMERS OF BOTANIZING IN NEWFOUNDLAND.

M. L. FERNALD.

(*Continued from p. 129.*)

PART III. NOTEWORTHY VASCULAR PLANTS COLLECTED IN NEWFOUNDLAND, 1924 AND 1925.

THERE is no satisfactory list of Newfoundland plants, and the detailed *Flora* which Professor Wiegand and I began in 1910 still needs so many finishing touches that it cannot now be presented. During the past two seasons, however, so many plants have been found which are new to the flora either of Newfoundland or of eastern America that their orderly enumeration at this time is appropriate; and, in order to determine the exact identities of some species, detailed revisions of certain groups have been necessary. In so far as these revisions are completed they are here presented; but certain groups, highly developed in the flora of Newfoundland, still await more critical study and reports upon them must be deferred. These include, among others, the genera *Poa*, *Polygonum* § *Avicularia*, *Cochlearia*, *Euphrasia*, *Campanula* and *Taraxacum*. In some cases, where new northern or southern limits in Newfoundland have been established, it has seemed appropriate to note species already known from remote sections of the island; and in a few cases new species are described or combinations made for extra-limital plants which have come to my attention in studying those of Newfoundland.

WOODSIA ALPINA (Bolton) S. F. Gray. Dry limestone cliffs, western face of Doctor Hill, and calcareous escarpments, western face of Bard Harbor Hill, Highlands of St. John, *Fernald & Long*, nos. 27,203, 27,204. See pp. 124, 125. Earlier collections only from Notre Dame Bay.

---

[1] "Sind wir . . . der Meinung, dass die Nomenclatur stets nur als Mittel zum Zweck der Verständigung in möglichst weiten Kreise, nicht aber als Selbstzweck betrachtet darf, and dass es dabei nur Zweckmassigkeits-, nirgend aber Rechtsfragen gibt."

W. glabella R. Br. Crests of limestone escarpment, western face of Bard Harbor Hill, Highlands of St. John, *Fernald & Long*, no. 27,205. See p. 124. Not previously known from north of Port-à-Port Bay and Notre Dame Bay.

Cystopteris bulbifera (L.) Bernh. Shaded base of wet escarpments of calcareous sandstone, western face of Bard Harbor Hill, Highlands of St. John, *Fernald & Long*, no. 27,206, the first station north of Bay of Islands. See p. 127. At its northernmost station *C. bulbifera* is associated with a peculiarly boreal group of species, including the two preceding and *Poa alpina* L., *Luzula spicata* (L.) DC., *Salix vestita* Pursh, *S. calcicola* Fern. & Wieg., *Draba rupestris* R. Br., *Arabis alpina* L., *Saxifraga cespitosa* L., *S. oppositifolia* L., etc.

C. montana (Lam.) Bernh. Mossy glades in spruce thickets, Savage Cove, *Fernald, Long & Dunbar*, no. 26,153. See p. 75. The only station known in Newfoundland. Found directly across the Straits, at Forteau and Blanc Sablon on the Labrador side.

Thelypteris spinulosa (O. F. Muell.) Nieuwl., var. **fructuosa** (Gilbert), n. comb. *Nephrodium spinulosum fructuosum* Gilbert, List N. A. Pterid. 37 (1901).

T. spinulosa, var. *fructuosa* stands out rather definitely in the series of variants of *T. spinulosa*. In Newfoundland it is more generally distributed than var. *intermedia* (Muhl.) Nieuwl.

The writer finds the following arrangement of the eastern American varieties of *T. spinulosa* useful and it may be of service to others.

a. Basal inferior and superior pinnules of the lowermost pinnae subopposite, rarely more than 4 mm. apart; the inferior 1–6 cm. long, if more than twice as long as the superior not exceeding the 2nd inferior pinnule *b*.
  b. Frond glabrous, twice pinnate; the pinnae obliquely ascending, gradually tapering to apex; their pinnules rarely cleft nearly to the middle; the basal inferior one usually longer than the 2nd inferior one: indusia glabrous: scales of the stipe pale-brown or cinnamon-color . . . *T. spinulosa* (typical).
  b. Frond commonly minutely glandular especially on the rhachis and rhacheolae, tripinnatifid or sometimes tripinnate; the pinnae slightly ascending to divergent; the basal inferior one shorter than to rarely exceeding the 2nd inferior one: indusia glandular: scales of the stipe usually dark-brown at base *c*.
    c. Mature indusia 0.8–1.4 mm. broad: pinnae gradually tapering to apex . . . . Var. *fructuosa*.
    c. Mature indusia 0.5–0.8 mm. broad: pinnae usually narrowed rather abruptly to prolonged lance-linear tips Var. *intermedia* (Muhl.) Nieuwl.
a. Basal inferior and superior pinnules of the lowest pinnae remote, 0.5–2 cm. apart; the inferior 3–10 cm. long, 2–4 times as long as the superior and commonly exceeding the 2nd inferior pinnule *d*.
  d. Frond ovate to ovate-triangular, 1–6.5 dm. long, 1–4 dm. broad, tripinnatifid (the basal pinnae simetimes tri-

pinnate), not glandular; the lower pinnules of the lowermost pinnae with oblong obtuse sharply toothed or cleft segments: rhachises of the spreading-ascending pinnae naked or with scattered linear- to lance-attenuate spreading scales: indusia glabrous
Var. *americana* (Fisch.) Weatherby.

d. Frond lanceolate, broad at base, gradually tapering from near the middle to the elongate tip, 2–6 dm. long, 1.2–2.5 dm. broad, tripinnate (the basal pinnae sometimes quadripinnate), somewhat glandular beneath; the ultimate divisions (of the 3rd or 4th order) of the lowermost pinnae elliptic-lanceolate to narrowly rhombic, subpetiolulate to petiolulate: rhachises of the spreading-ascending to falcate-recurving pinnae bearing ovate brown scales as well as bristle-like chaff: indusia glandular........................Var. *concordiana* (Davenp.) Weatherby.

The wholly anomalous var. *concordiana,* it may be noted, has been known only from the original individual. It is very similar to and perhaps identical with the equally anomalous and rare English *Lastrea dilatata,* var. *lepidota* Moore.

In one of Schinz & Thellung's papers, in Vierteljahrss. Natur. Gesells. Zürich, lx. 339 (1915), *Dryopteris austriaca* (Jacq.) H. Woynar is published as a new combination based upon *Polypodium austriacum* Jacq. Obs. Bot. i. 45 (1764). It is frankly admitted, however, that the exact identity of *P. austriacum* is in doubt, for "*P. austriacum* Jacq. wird meistens zu *D. spinulosa* gezogen; nach Woynar soll sie speciell zur Unterart *dilatata* (Hoffm.) C. Christensen gehoren." Jacquin's description is wholly unconvincing and it is difficult to find specimens of the *Thelypteris spinulosa* group which satisfy his requirement of sericeous-woolly bases: "Petioli omnes sunt pilosi, pinnae & stipes inferior minus; sed hic ad basin languine sericea obducitur." The character, *pilose* fronds ("frondibus supra decompositis, pilosis"), is also difficult to reconcile with either *T. spinulosa* or its var. *dilatata.* To displace the long-used and clearly understood names, *Polypodium spinulosum* Muell. (1777) and *P. dilatatum* Hoffm. (1796), by such an indefinite name as *P. austriacum* Jacq. can lead only to confusion or perpetual doubt.

THELYPTERIS FILIX-MAS (L.) Nieuwl. Frequent and abundant on rich slopes and calcareous talus along the Straits of Belle Isle and generally southward near the West Coast. See p. 110.

POLYSTICHUM LONCHITIS (L.) Roth. Exposed or partly shaded limestone ledges or talus, Burnt Cape, *Fernald, Wiegand, Pease, Long, Griscom, Gilbert & Hotchkiss,* no. 27,231; Cape Norman, *Wiegand, Griscom & Hotchkiss,* no. 27, 232; western face of Doctor Hill, Highlands of St. John, *Fernald & Long,* no. 27,235. See p. 102.

Not previously known from north of Bay of Islands and Notre Dame Bay.

ATHYRIUM ALPESTRE (Hoppe) Rylands, var. AMERICANUM Butters. Abundant and very handsome on quartzite rocks and gravels along brooks in gulches of Bard Harbor Hill, Highlands of St. John. See p. 117. This and the upper slopes of Tabletop Mts., Gaspé, are the only known regions for this problematic plant east of the Rocky Mts. On luxuriant clumps the fronds become 9 dm. long and 2.5 dm. wide.

ASPLENIUM VIRIDE Hudson. Exposed or partially shaded limestone along the Straits of Belle Isle, from Big Brook to Burnt Cape, the fronds subcoriaceous and tough, often forming dense turf. See p. 99. Limestone cliffs and ledges, western face of Bard Harbor Hill, Highlands of St. John, *Wiegand, Gilbert & Hotchkiss*, no. 27,249, *Fernald & Long*, no. 27,253. Not previously known from north of Bay of Islands.

CRYPTOGRAMMA STELLERI (Gmel.) Prantl. Frequent in crevices of calcareous ledges and cliffs, by streams and on escarpments of the Highlands of St. John; not previously known from north of Cow Head. See p. 118.

POLYPODIUM VIRGINIANUM L. Locally abundant on mossy crests and shaded ledges, Highlands of St. John; not previously known from north of Cow Head.

SCHIZAEA PUSILLA Pursh. Wet bog-barrens, Trepassey and Biscay Bay, *Fernald & Long*, nos. 26,156, 26,157, the first stations on the Avalon Peninsula. See p. 84.

OSMUNDA CLAYTONIANA L. Slopes and gulches of Bard Harbor Hill, Highlands of St. John, *Fernald, Wiegand, Long, Gilbert & Hotchkiss*, nos. 27,264, 27,265, the first stations on the West Coast north of Bay of Islands. See p. 124.

O. CINNAMOMEA L. Coniferous woods on lower southwestern slope of Bard Harbor Hill, Highlands of St. John, *Fernald, Wiegand, Long, Gilbert & Hotchkiss*, no. 27,266, the first station on the West Coast north of Chimney Cove.

BOTRYCHIUM LUNARIA (L.) Sw. Common in turf or peat overlying limestone, western Newfoundland, and along the Straits quite to Quirpon. See p. 59. Passing to var. ONONDAGENSE (Underw.) Clute, which is more inclined to occur in shade but which, when occurring in the open, seems to be more sensitive than typical *B. Lunaria*. See p. 119.

B. LANCEOLATUM (S. G. Gmel.) Ångstr. Dryish meadow-slope south of Ship Cove, Sacred Bay, *Fernald, Wiegand & Long*, no. 27,273, the only definite station known to us. See p. 122. Recorded from Newfoundland, without locality, by Underwood, Bull. Torr. Bot. Cl. xxx. 46 (1903).

B. MATRICARIAEFOLIUM A. Br. Dryish meadow south of Ship Cove, *Fernald, Wiegand & Long*, no. 27,276 (see p. 122); very scarce on turfy slopes and trap talus, Sacred Island, *Wiegand, Gilbert & Hotchkiss*, no. 27,274, *Fernald & Long*, no. 27,275; very scarce, turfy shore, Flower Cove, *Fernald & Long*, no. 27,277. New to Newfoundland.

Equisetum pratense Ehrh. Mossy glades in spruce woods north of Doctor Hill, St. John Bay, *Fernald & Long*, no. 27,284, the first station east of the Gaspé Peninsula. See p. 125.

Lycopodium inundatum L., var. Bigelovii Tuckerm. Margins of shallow pools in peaty barrens, Port aux Basques, *Fernald, Long & Dunbar*, no. 26,181; wet bog-barrens, Trepassey, *Fernald, Long & Dunbar*, no. 26,182; collected in dried-out pools in tundra, Quarry, *Fernald & Wiegand*, no. 4365. See pp. 56, 84. A coastal plain extreme heretofore not positively identified from northeast of Nova Scotia.

Isoëtes macrospora Dur. Pools and rills among the gneiss hills, Port aux Basques, *Fernald, Long & Dunbar*, no. 26,196; collected in 1910 at Curling by *Fernald & Wiegand* (no. 2404). Recorded by Pfeiffer only from the Avalon Peninsula.

I. Tuckermani A. Br. Gravelly margins of ponds, Whitbourne, *Fernald, Long & Dunbar*, nos. 26,197, 26,198; muddy bottom of shallow pool, Cape Dégrat, Quirpon Island, *Fernald & Long*, no. 27,302; also in pond, Frenchman's Cove, Bay of Islands, *Mackenzie & Griscom*, no. 10,031. See pp. 85, 120. Records by Pfeiffer only from Quiddy Viddy Lake.

Potamogeton vaginatus Turcz. In dead water near tide-limit, East Brook, St. Barbe Bay, *Wiegand & Hotchkiss*, no. 27,327; in water over muddy limestone pavement, large pond in barrens south of Flower Cove, *Fernald & Long*, no. 27,328; new to Newfoundland. See p. 127.

P. confervoides Reichenb. Shallow pools in peaty barrens among the gneiss hills, Port aux Basques, *Fernald, Long & Dunbar*, no. 26,225. See p. 56. Heretofore known in Newfoundland only from the central and southeastern areas.

P. Hillii Morong. In dead water over muddy limestone pavement, large pond in barrens south of Flower Cove, *Fernald & Long*, no. 27,330, the first from northeast of Vermont. See p. 127. The winter-buds, heretofore scarcely known, were splendidly developed, as large as in *P. obtusifolius* M. & K., but with characteristic bristle-tipped ligules and leaves.

P. Friesii Rupr. Dead water near tide-limit, East Brook, St Barbe Bay, *Wiegand & Hotchkiss*, no. 27,331, the first in Newfoundland from north of Harry's River. See p. 127.

P. Oakesianus Robbins. Pond-hole in boggy spots on hills, western side of Quirpon Island, *Wiegand, Gilbert & Hotchkiss*, no. 27,339, the first from north of Bonne Bay and Notre Dame Bay. See p. 120.

P. praelongus Wulfen. Deep water of large pond, Cook Point, Pistolet Bay, *Fernald, Gilbert & Hotchkiss*, no. 27,346, the first from north of the Humber and Notre Dame Bay. Afterward collected on the Labrador side of the Straits (Trout Pond, Blanc Sablon River, *Fernald & Long*, no. 27,347).

ZANNICHELLIA PALUSTRIS L., var. MAJOR (Boenn.) Koch. Dead water near tide-limit, East Brook, St. Barbe Bay, *Wiegand & Hotchkiss*, no. 27,349, the first on the West Coast from north of Bay St. George. See p. 127.

GLYCERIA FERNALDII (Hitchc.) St. John. Shallow water of old beaver pond near the Yellow Marsh, back of Bard Harbor, St. John Bay, *Gilbert & Hotchkiss*, no. 27,361, the first from north of Bay of Islands.

G. FLUITANS (L.) R. Br. Along spring-rill in swaie, Trepassey, *Fernald, Long & Dunbar*, no. 26,311, an extension southward from the region of St. John's; also in swales at Bay Bulls. See pp. 83, 85.

PUCCINELLIA COARCTATA Fern. & Weath. Apparently of general occurrence in northwestern Newfoundland, often occurring in limestone gravel or humus above the direct influence of sea-water. See p. 118.

In 1916 (RHODORA, xviii. 1, 2) Mr. Weatherby and I pointed out that the name *Puccinellia* Parlatore (1848) has precedence as a validly published generic name over *Atropis*. But since European students, to whose judgment we should ordinarily defer, notably Briquet and Schinz and Thellung[1], are maintaining *Atropis* it is perhaps advisable to reiterate the main arguments for and against it. In Ruprecht's *Flores Samojedorum Cisuralensium*[2] several species of *Poa* were enumerated with parenthetical sectional or subgeneric names: "Poa (Phippsia) algida (R. Br.)," "Poa (Catabrosa) airoides Koel.," "Poa (Atropis) distans L.," etc. and at the close of the discussion of "Poa (Dupontia) pelligera" occurred the following: "Observatio necessaria. Arctophila* a Catabrosa (airoide) praesertim differt glumarum conformatione et longitudine, hac nota etiam et insuper valvulis ecostatis a Glyceria R. Br. recedit. Atropis Trin. (P. distans) Catabrosae quoad glumas proxima, spiculas habet (saltem in statu virgineo) lineares, fere teretes; in Arctophila nostra semper ex ovato-oblongae vel lanceolatae. E. conditione glumarum generum series fortasse sequens: Dupontia, Arctophila, Poa, Atropis, Catabrosa, Phippsia, Coleanthus." etc. It has been pointed out that in translating Ruprecht's Latin, Weatherby and I made an error and that the last sentence should begin, "From the condition of the glumes a series of genera perhaps as follows." This, however, does not change our main contention that, since Ruprecht definitely treated all these plants as *Poa* and only by a comment at the end of the treatment half-heartedly tried to call them a series of genera, still using the initial "*P.*" "P. distans" and "P. (Dupontia) psilosantha," the genus *Atropis* (and other genera with it) was not adequately launched. As we have already pointed out, "it is noteworthy that most authors who take up *Atropis* cite not only the Ruprecht reference but the later reference to Grisebach in Ledebour (1853)[1] as validating the genus. Grisebach, in Ledebour, certainly gave a clear generic characterization and treated the species unequivocally as species of *Atropis*, so that *Atropis* as a well published genus should date from Grisebach's treatment in 1853. In 1848, however, Parlatore, with equal clarity and completeness had characterized *Puccinellia* as a genus to include some of the species, *P. distans* and *P. maritima*, later placed by Grisebach under *Atropis;* and it seems to us that the cause of sound nomenclature is best served by maintaining the fully and definitely published *Puccinellia* Parlatore (1848) rather than the inadequately and uncertainly published *Atropis* Trinius in Ruprecht (1845, validated by Grisebach in 1853)." The last point is most important, Shall we gain a sound and stable nomenclature by choosing generic names which are doubtfully or only half-heartedly published instead of those which are put forward with definiteness C/ and pre~~s~~ision?

---

[1] Schinz & Thell. Vierteljahrss. Naturf. Gesells. Zür. lxviii. 459–461 (1923).

[2] Rupr. Beitr. zur Pflanzenk. des russischen Reiches ii. 61, 64 (1845).

Festuca supina Schur. Abundant on calcareous gravel and rock along the Straits of Belle Isle. See p. 102. Previous records from mountains to the south.

F. vivipara (L.) Sm. In peat or turf, rarely on open gravel, abundant in northwestern Newfoundland. See pp. 53, 59.

It is not satisfactory to consider *F. vivipara* merely a viviparous state of *F. supina* or of *F. ovina* L., as is done in Europe. The latter is not indigenous in America, merely an introduction from Europe, but both *F. supina* and *F. vivipara* are indigenous in boreal America. If *F. vivipara* were merely a viviparous state of *F. ovina* or of *F. supina* its occasional non-viviparous panicles should be like those of the latter species. In *F. ovina* and *F. supina*, however, the lemnas are distinctly aristate; but in *F. vivipara* they are muticous. The change from a fertile to a viviparous spikelet should not also alter the lemmas from aristate to muticous.

---

[1] Griseb. in Ledeb. Fl. Ross. iv. 388 (1853).

F. CAPILLATA Lam. Dry gneiss crests and ridges back of Port aux Basques, *Fernald, Long & Dunbar*, no. 26,319; silicious gravelly slope, Harbour Breton, *Fernald, Long & Dunbar*, no. 26,320. Earlier collections indicate a range across the breadth of southern Newfoundland, where the plant is clearly indigenous. See pp. 50, 56.

POA ALPINA L., var. BIVONAE (Parl.) St. John. Dripping slaty cliffs by waterfall, John Kanes's Ladder, western face of Doctor Hill, *Fernald & Long*, no. 27,400. The only other Newfoundland collection is from Table Mt., Port-à-Port Bay.

P. ALPINA, var. FRIGIDA (Gaud.) Reichenb. Turfy or gravelly limestone shores, tundra or barrens, rather general along the Straits of Belle Isle and south to St. John Bay; also about Port-à-Port Bay and Bay St. George: Boat Harbor, *Fernald, Wiegand & Long*, no. 27,393; Big Brook, *Wiegand, Gilbert & Hotchkiss*, no. 27,390; Sandy (Poverty) Cove, *Pease & Griscom*, no. 27,389; Brig Bay, *Fernald, Long & Dunbar*, no. 26,293; St. John's Island, *Fernald, Wiegand, Long, Gilbert & Hotchkiss*, no. 27,396; Table Mt., Port-à-Port Bay, *Fernald & St. John*, no. 10,784, *Mackenzie & Griscom*, no. 10,083; Green Gardens, Cape St. George, *Mackenzie & Griscom*, no. 11,041. The first American records. See pp. 79, 97.

P. ALPINA, var. BREVIFOLIA Gaud. Dry limestone barrens, from Straits of Belle Isle south of St. John Bay: Burnt Cape, *Fernald, Wiegand, Pease, Long, Griscom, Gilbert & Hotchkiss*, no. 27,391; Boat Harbor, *Fernald, Wiegand & Long*, no. 27,392; Savage Cove, *Fernald, Pease & Long*, no. 27,394; St. John's Island, *Fernald, Wiegand, Long, Gilbert & Hotchkiss*, no 27,397. The first records from America. See p. 102.

POA LAXA Haenke. Damp quartzite cliffs along upper Deer Pond Brook, Highlands of St. John, *Fernald & Long*, no. 27,405, the first collection from Newfoundland. See p. 124.

CATABROSA AQUATICA (L.) Beauv. Abundant along the Straits and probably the length of the West Coast. Tremendously variable; in rich swales and sloughs with panicles more than 1 dm. long, in drier habitats with them reduced to 2 cm.

HORDEUM BOREALE Scribn. & Sm. Turfy or gravelly slopes, swales, and strands, abundant at the eastern end of the Straits of Belle Isle: Little Quirpon, *Fernald & Gilbert*, no. 27,440; Mauve Bay, *Fernald, Wiegand, Long, Gilbert & Hotchkiss*, no. 27,442; Ship Cove, *Fernald, Wiegand & Long*, no. 27,441. See p. 121. Our only previous record was from Port Saunders. A species of the north Pacific slope of America known in the East only from northern Newfoundland and adjacent Labrador.

TRISETUM MELICOIDES (Michx.) Vasey. By brook in boggy thicket southeast of Flower Cove, *Wiegand, Gilbert & Hotchkiss*, no. 27,456, the first Newfoundland station outside the Exploits valley.

DESCHAMPSIA CESPITOSA (L.) Beauv. This polypmorhous circumpolar species is represented in eastern America by four clearly defined varieties, three of which occur in Newfoundland. Their diagnostic characters are indicated below.

a. Culms 0.65–1.7 m. high, 2–6 mm. in diameter at base: leaves elongate, flat or only tardily involute; the basal mostly 1.5–6 dm. long, with ligules 5–12 mm. long; the lower cauline with blades 1.5–4 dm. long: panicle 1.5–4.5 dm. long, diffuse *b.*
  b. Spikelets 3.5–5.5 mm. long............................Var. *genuina.*
  b. Spikelets 2–3 mm. long..........................Var. *parviflora.*
a. Culms 0.7–7.5 dm. high, 1–2.5 mm. in diameter at base: leaves flat or involute; the basal mostly 0.3–3 dm. long, with ligules 2–7 mm. long; the lower cauline with blades 0.1–1.8 dm. long: panicle 0.2–2.2 dm. long *c.*
  c. Spikelets 3–4.5 mm. long: panicle lax, rather diffuse during anthesis......................................Var. *glauca.*
  c. Spikelets 4.5–7 mm. long: panicle commonly contracted, occasionally diffuse, during anthesis...............Var. *littoralis.*

Var. GENUINA Gren. & Godr. Fl. de France, iii. 507 (1855). *Aira cespitosa* L. Sp. Pl. i. 64. (1753). *A. altissima* Moench, Meth. 182 (1794). *D. cespitosa* (L.) Beauv. Agrost. 91, 160, expl. Pl. xviii. (1812). *A. cespitosa,* ε. *firmula* Wimm. & Grab. Fl. Sil. i. 60 1827). *A. cespitosa genuina* Reichenb. Ic. Fl. Germ. i. t. XCVI. fig. 1682 (1834). *A. cespitosa* b) *altissima* (Moench) Aschers. Fl. Brand. i. 833 (1864).—Newfoundland; Montana to southern British Columbia, south to Colorado, Nevada and California; Eurasia. The following are characteristic. NEWFOUNDLAND: sandy and gravelly banks, Whitbourne, *Fernald & Wiegand,* no. 4599; upper border of gravelly margin of Junction Pond, Whitbourne, *Fernald & Long,* no. 26,282; gravelly thickets along Harry's River, *Fernald & Wiegand,* no. 2589. MONTANA: Bozeman, *Rydberg,* no. 2219; wet meadow, Sheep Creek, *Rydberg,* no. 3301. WYOMING: Laramie, *Merrill,* no. 25. COLORADO: slopes, Mt. Carbon, *Tidestrom,* no. 3725. IDAHO: Forks of St. Mary's River, *Leiberg,* no. 1118; canyon at head of South Fork of the Humboldt, *Heller,* no. 9727. CALIFORNIA: Prattville, *Heller & Kennedy,* no. 8790; Mt. Eddy, *Copeland,* no. 3798. OREGON: wet soil in shade of *Coniferae,* Big Meadows, Des Chutes River, *Leiberg,* no. 523; Camas Prairie, *Griffith & Hunter,* no. 76; ditch, Salem, *Nelson,* no. 1354. BRITISH COLUMBIA: summit of Selkirk Mts., *J. Macoun;* Chilliwack Valley, *J. M. Macoun,* no. 26,084.

Var. PARVIFLORA (Thuill.) Richter, Pl. Eu. i. 56 (1890). *Aira parviflora* Thuill. Fl. Par. ed. 2, i. 38 (1799). ? *A. cespitosa* β. *virescens* Wimm. & Grab. Fl. Sil. i. 60 (1827). -Locally in New England where introduced from Europe. MAINE: damp hollow, woods and thickets along shore, Islesboro, *Woodward, Bissell & Fernald,* no. 8743. MASSACHUSETTS: edge of field, Washington, July 17, 1919, *Hoffmann.* CONNECTICUT: open swamp, very abundant, Franklin, July 8, 1906, *Woodward;* introduced in grassland, Southington, June 21, 1903, *Bissell;* spreading in partly shaded dooryard, South Windsor, *Weatherby,* no. 4945.

Var. glauca (Hartm.) Lindm. fil. Svensk Fanerogamfl. 81 (1918). *Aira ambigua* Michx. Fl. Bor.-Am. i. 61 (1803). *D. glauca* Hartm. Handb. Skand. Fl. 448 (1820). *A. aristulata* Torr. Fl. N. Mid. U. S. i. 132 (1824). *A. cespitosa* β. *glauca* Hartm. l. c. ed. 2: 25 (1832). *A. cespitosa*, var. *minor* Lange, Fl. Dan. xvii. fasc. l. 4, t. MMDCCCCXLV, fig. 1 (1880).—River-banks, lake-shores and damp, chiefly calcareous, soil, Newfoundland to Yukon, south to northern New Jersey, Pennsylvania, Ohio, Illinois, Arizona, and California; Faroe Islands and Scandinavia. The following, selected from a large series of specimens, are representative. Newfoundland: Rock Marsh, Flower Cove, *Fernald, Long & Dunbar*, no. 26,279. Quebec: "circa lacus *Mistassins* et juxta amnes in lacum *S. Joannis* defluentes,"-*Michaux* (type of *Aira ambigua* in herb. Mus. d'Hist. Nat. Paris), "Ab Aira *cespitosa* foliis tantum differt etiamque dimidio minor est"; Ile-aux-Couleuvres, Lac St-Jean, *Victorin*, no. 15,258; Bonaventure River, August, 1904, *Collins, Fernald & Pease;* St. Lawrence River below Quebec, July 9, 1905, *Churchill.* New Brunswick: Woodstock, *Fernald & Long*, no. 12,658; Westfield, *Fassett*, no. 2183. Nova Scotia: Shubenacadie Grand Lake, *Fernald, Bartram & Long*, no. 23,285; Cedar Lake, *Fernald, Bissell, Pease, Long & Linder*, no. 19,946; Yarmouth, *Bissell & Pease*, no. 19,944. Maine: Fort Fairfield, *Fernald*, no. 183; Milford, *Fernald*, no. 12,655; Winn, *Fernald & Long*, no. 12,657; Pembroke, *Fernald*, no. 1310; West Dresden, *Fassett*, no. 1045. New Hampshire: Lake Umbagog, Errol, *Pease*, no. 10,515; Dalton, *Pease*, no. 17,387; Summer's Falls, June 12, 1897, *Williams.* Vermont: Lyndon, June, 1871, *Congdon;* Burlington, June 18, 1877, *Pringle;* Brattleboro, July 8, 1895, *Grout.* Massachusetts: Merrimack R., Lowell, July 20, 1882, *Swan.* Connecticut: Connecticut R., East Haddam, *Weatherby*, no. 4295. New York: Spencer Lake, Spencer, *Metcalf*, no. 5698; Cortland, *Wiegand*, no. 3526; Bergen, *House*, no. 6521. New Jersey: White Pond, Sussex Co., *Mackenzie*, no. 4648. Pennsylvania: Pleasant Grove, *Heller*, no. 4819. Ontario: Belleville, *Macoun*, no. 2239; Wingham, June 17, 1892, *Morton.* Michigan: Isle Royale, *Cooper*, no. 164. Wisconsin: Jackson Harbor, June 21, 1896, *Schuette.* Minnesota: Thompson, Carlton Co., *Sandberg*, no. 395. Manitoba: Lake Winnipeg Valley, 1857, *Bourgeau.* Saskatchewan: Moose Jaw, *Macoun*, no. 13,080. Alberta: Red Deer Valley near Rosedale, *Moodie*, no. 1042; near Banff, July 4, 1891, *Macoun.* Montana: Forks of the Madison, *Rydberg & Bessey*, no. 3588. Idaho: Victor, *Merrill & Wilcox*, no. 185. Wyoming: Laramie River, Albany Co., *Nelson*, no. 430; Washington Ranch, *Merrill & Wilcox*, no. 78. Colorado: Gunnison, *Baker*, nos. 530, 553; Trout Creek Pass, July 18, 1873, *Coulter;* Hahn's Pass, *Goodding*, no. 1692; Hamor's Lake, *Baker, Earle & Tracy*, no. 982. Arizona: Willow Spring, *Rothrock*, no. 230, *Palmer*, no. 566. Nevada: Jarbridge, *Nelson & Macbride*, no. 2005. California: Big Trees, Calaveras Co., *Hillebrand*, no. 2246; near

Donner Lake, *Torrey,* no. 558. OREGON: Wallowa Mts., *Cusick,* no. 3126; Lower Albina, Portland, *Sheldon,* no. 11,125. WASHINGTON: Calispel Valley, *Kreager,* no. 328. YUKON: Carcross, *Eastwood,* no. 697e.

The identity of our plant with the Scandinavian var. *glauca* is definitely indicated by beautiful material collected in Torne Lapmark by Professor Alm. This is clearly matched by many American specimens, especially such small plants as *Fernald, Long & Dunbar,* no. 26,279 from Newfoundland; *Fernald & Collins* material from Gaspé Co., Quebec; *Eggleston,* no. 1 from Summer's Falls, New Hampshire; *Sandberg,* no. 395 from Minnesota; *Tweedy,* no. 616 from Yellowstone Park;

Var. LITTORALIS (Reut.) Richter, Pl. Eu. i. 56 (1890). *Aira cespitosa,* var. β. *littoralis* Reuter, Cat. Pl. Vasc. Genève. 116 (1832). *A. littoralis* (Reut.) Godet, Fl. Jura, 803 (1852). *D. cespitosa,* var. *alpina* Vasey in Beal, Grasses N. A. ii. 368 (1896). *D. alpicola* Rydb. Bull. Torr. Bot. Cl. xxxii. 601 (1905). *A. alpicola* Rydb. Fl. Rocky Mts. ed. 2, 1112 (1923).—Southern Labrador, western Newfoundland and eastern Quebec; Alaska to the alpine regions of Colorado, Utah and California; Eurasia. LABRADOR: wet sands and peats, Forteau, *Long,* no. 27,461; brackish shore, Blanc Sablon, *Fernald & Wiegand,* nos. 2583, 2586 (distrib. as var. *Wibeliana* (Sonder) Ledeb.). NEWFOUNDLAND: exsiccated peaty depressions in limestone barrens, Cape Norman, *Wiegand & Long,* no. 27,460; springy swale, Flower Cove, *Fernald, Long & Dunbar,* no. 26,281; serpentine tablelands, Bonne Bay, *Fernald & Wiegand,* no. 2588, *Kimball,* no. 126; serpentine barrens, Blomidan Mts., *Fernald & Wiegand,* no. 2585; river-bank, Coal River, *Waghorne,* no. 16 (as *D. bottnica* Wahlenb.); limestone tableland, Table Mt., Port-à-Port Bay, *Fernald & Wiegand,* no. 2584, *Fernald & St. John,* nos. 10,781–10,783; gravelly beach, St. George's Pond, *Fernald & Wiegand,* no. 2587; lakeside, Grand Lake, *Waghorne,* no. 18. QUEBEC: mossy serpentine barrens, alt. 1000–1100 m., and alpine brooks and pools, Mt. Albert, *Collins & Fernald,* nos. 24, 24a, *Victorin et al,* no. 17,786; Ste. Anne de Beaupré, *Macoun,* no. 69,230. ALBERTA: mountains north of Cavell Creek, *J. M. Macoun,* no. 98,349; south of Wilcox Pass, *Brown,* no. 1394; Lake Louise, *Brown,* no. 549. IDAHO: Soda Springs, *Mulford,* no. 53. WYOMING: many specimens from the mountains, at 2400–3600 m. COLORADO: many specimens from the mountains at 2600–3965 m. UTAH: Dyer Mine, Uintah Mts., *Gooding,* no. 1299. CALIFORNIA: Tuolumne Meadows, *Smiley,* no. 750; Lake of the Woods Meadow, Tahoe, *Smiley,* no. 65. ALASKA: Unalaska, *Harrington;* Attu Island, *J. M. Macoun,* no. 269.

(*To be continued.*)

SUAEDA MARITIMA, A CORRECTION.—*Suaeda maritima* (L.) Dumort. was omitted from my list published in RHODORA xxviii. 37, 1926. I found this species on Charles River marsh, back of Stillman Infirmary, Cambridge, on September 22, 1923. The single specimen was fleshy and prostrate with up-carving branches, and Prof. M. L. Fernald pronounced it distorted. On October 23, 1894, I found a cluster of this species near the same spot. The plants were distorted, but not prostrate. Specimens of these plants are in my herbarium. This is the one species in my list affecting saline habitats.—WALTER DEANE, Cambridge, Massachusetts.

Vol. 28, no. 331, including pages 118 to 132 and plates 154 and 155, was issued 22 July, 1926.

DUPLICATE BOOKS FOR SALE.

Bentham, G. Handbook of the British Flora. Ed. 4. 8° 607 pp. Cloth. London, 1878.	**$2.50**
Bentham, G. & Hooker, J. D. Genera Plantarum. 3 vols. 8° London, 1862–83. Pebbled cloth sides, morocco backs, gilt tops. Fine copy of important work now rare..................	**$60.00**
Sullivant, W. S. Icones Muscorum, 8vo., illustrated by numerous copper plates of high excellence (unbound and in sheets). Here offered at a greatly reduced price..................	**$6.00**
Supplement to the preceding (also in sheets).	**$5.00**
Icones and Supplement together............	**$10.00**
Watson, S. Bibliographical Index to N. A. Botany. Part I (all published). Washington. 1878. 8°	**$1.25**

Address Librarian, GRAY HERBARIUM of HARVARD UNIVERSITY, Cambridge, Mass

ALL ABOUT THE WILDFLOWERS

THE AMERICAN BOTANIST is devoted entirely to our native plants. Color, fragrance, nectar, pollination, seed dispersal, edible and poisonous plants, drugs, dyes, soaps, fibers and hundreds of other subjects discussed. A series of "Plant Names and Their Meanings" now running. Twenty-six volumes published

Quarterly, 40 pages, $1.50 a year; sample, 25 cents.
50-cent coupon with each sample.

WILLARD N. CLUTE & CO. JOLIET, ILL.

WHAT SOIL DOES IT GROW IN?

It is no longer necessary to depend upon government experimental stations, county agents, etc., to test the soil. A LaMotte Indicator Field Set—small enough to fit in your pocket—allows you now to make your own tests. Used and endorsed for scientists and laymen throughout the world. Full instructions with each set. Price $4.75 delivered.

LaMotte Chemical Products Company,
Dept. W-16, McCormick Building,
Baltimore, Maryland.

FIELD AND HERBARIUM EQUIPMENT

- HAND LENSES
- FERN TROWELS
- FIELD PICKS
- COLLECTING CASES
- MOUNTING PAPERS
- HERBARIUM CASES
- PLANT PRESSES
- GENUS COVERS
- FELT DRIERS

Write for free Catalog R-91

CAMBRIDGE BOTANICAL SUPPLY CO., Waverley, Mass.